> **STOXX:**

Reducing Risk with Innovative Indices

STOXX Ltd is a leading provider of innovative and global indices, offering various solutions to minimise risk exposure by lowering volatility. The 2015 stock market sell-off proved that these solutions can help protecting portfolios allocated to equities without capping returns.

STOXX is committed to delivering highly innovative and transparent index concepts to the market. This is acknowledged by the fact that STOXX has won the CFI.co 2015 Award under the category Most Innovative Index Provider Global 2015. STOXX is currently calculating a comprehensive index family of over 7,000 strictly rules-based indices covering 65 countries globally.

STOXX is continuously expanding its global range of indices and offers a set of innovative smart-beta indices, among them index families with the aim to minimise risk by reducing volatility. To underline STOXX's ongoing commitment to innovation, the STOXX True Exposure™ Indices (STOXX TRU™) were launched earlier in 2015. The STOXX TRU index family is a global offering that allows investors to get exposure to a predefined country or region while limiting the exposure to foreign currency and market risks, and is based on a proprietary process to estimate revenue generation.

THE RIGHT STRATEGY

This summer's market sell-off was a stark reminder of how swings in risky assets can wipe out a year's gains. After developed markets, as measured by the STOXX® 1800 Global Index in the EUR gross return version, gained an impressive 20% by mid-April, all of these gains were gone by late August.

After the rout, and with the market once again up over 15% YTD, the question naturally emerges on how best to lock in those gains and avoid similar losses, especially given that many institutional investors must maintain a minimum allocation to equities to meet their required return targets.

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A toolkit of strategies is available which can help reduce downside volatility in an equity portfolio. These range from reducing the overall equities exposure via risk-control strategies and the use of derivatives over low volatility strategies including Minimum Variance solutions, all the way to infrastructure investments and alternative approaches to controlling downside risks via solutions that allow for a better, "truer" implementation of views on relative regional performance outlooks.

RISK CONTROL SOLUTIONS

Risk-control strategies cap exposure to a given equity market segment based on the observed volatility of that equity market. As volatility goes up, which typically happens during market corrections, a portion of the equity allocation is thus placed into cash. In doing so, the strategy provides downside protection when needed most. On the flipside, the strategy delivers less-than-full participation in market upswings after a correction.

DERIVATIVES

Hedging strategies using derivatives such as put or (short) call options can provide insurance. As with any insurance, they come with an on-going cost, which reduces returns for the overall equity allocation. Moreover, adding or increasing insurance coverage while equity volatility is rising, which is when insurance is most needed, also comes with a rising cost. This might further reduce the return of the equity allocation.

Investors who have the ability to do so can also protect an equities portfolio by going short (or selling) index futures such as the EURO STOXX 50® Index futures. Furthermore, they can buy futures on the VSTOXX Index, arguably the most widely used Eurozone volatility index. As shares fall, the VSTOXX generally rises as it tracks implied volatility of the EURO STOXX 50 Index. Conversely, the investor will lose money with these hedges when markets rise.

LOW VOLATILITY AND MINIMUM VARIANCE STRATEGIES

Low volatility strategies tend to increase risk-adjusted performance by systematically overweighting stocks that have lower-than-market volatility as opposed to stocks with higher volatility. A common criticism of strategies labelled low volatility is that they do not typically consider correlations among the invested stocks (i.e. they assume all pairwise correlations to be identical). As a result, low volatility strategies can unintentionally build up large positions in highly correlated stocks, which can lead to large drawdowns at times of market stress.

In contrast to low volatility strategies, Minimum Variance strategies explicitly take into consideration covariance among stocks and focus on the overall volatility of a portfolio rather than of individual components, thus mitigating the structural deficiencies of low volatility strategies. In 2012, STOXX partnered with Axioma, a leading provider of portfolio construction tools and risk models, to create the STOXX Minimum Variance index family.

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STOXX Global 1800 Minimum Variance Unconstrained vs. STOXX Global 1800

Data from Oct. 1, 2007 to Sep. 30, 2015

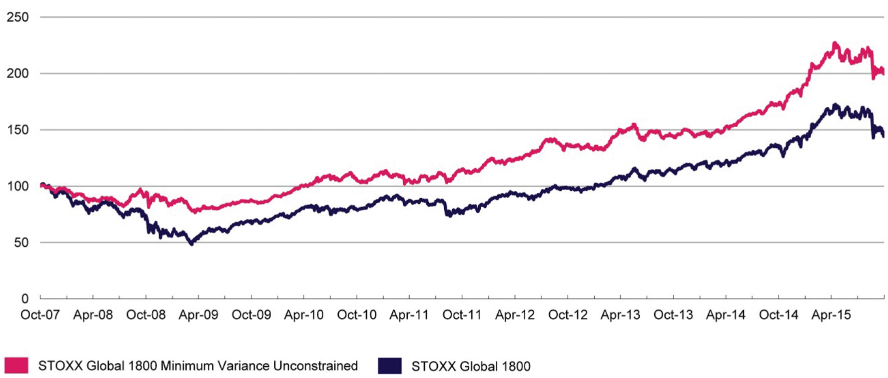

Figure 1: Performance chart. Index data is in EUR, Gross Return and normalised to 100.

STOXX True Exposure Developed Markets 100% vs. STOXX Global 1800

Data from Aug. 3, 2015 to Sep. 30, 2015

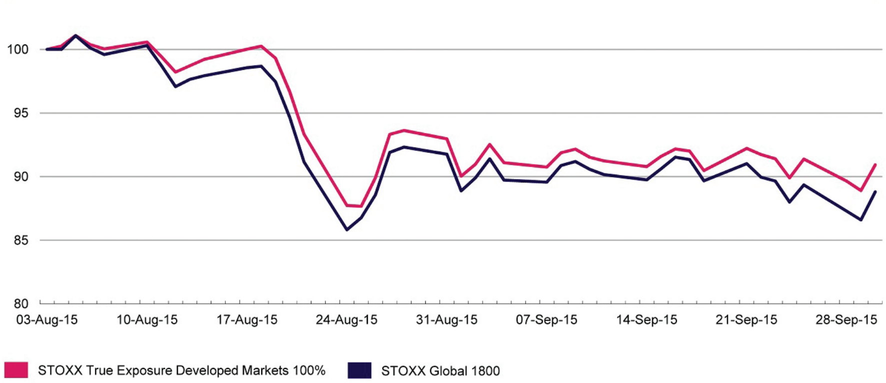

Figure 2: Performance chart. Index data is in EUR, Gross Return and normalised to 100.

The STOXX Minimum Variance Indices are designed to minimise risk by reducing the volatility of the underlying index. STOXX offers two versions – constrained and unconstrained – for global and regional markets and various countries. The constrained index version optimises the benchmark index with respect to volatility and therefore possesses a lower risk profile. The unconstrained version provides an index that is minimised for volatility but not restricted to follow the underlying benchmark too closely.

RETROSPECTIVE MINIMUM VARIANCE STRATEGIES

So how did the Minimum Variance solutions perform in practice? In the market slump of October, 2007 to March, 2009, the STOXX Global 1800 Minimum Variance Unconstrained Index in EUR gross, for instance, fell 27%, or only half as much as its market-cap weighted benchmark, the STOXX Global 1800, which lost 54% (see figure 1).

The Minimum Variance strategy was tested again more recently with the European debt crisis in the summer of 2011, and in August/September 2015 when concerns about a slowdown in China sent equities lower. In the first instance, the STOXX Global 1800 Minimum Variance Unconstrained Index outperformed the STOXX Global 1800 by 17 percentage points during July to September 2011 (6% vs. the benchmark's -10% loss), and fell by 4 percentage points less than its broader benchmark between August and September this year (-7% vs -11%) (see figure 1). Fears of a Greek default and exit from the Eurozone pushed the STOXX Europe 600 Index down by 8.5 % between May 27 and July 8 this year. By comparison, the STOXX Europe 600 Minimum Variance Unconstrained fell only 5.9%.

ENHANCED IMPLEMENTATION OF RELATIVE REGIONAL PERFORMANCE OUTLOOKS

Often, due to strategic allocation bands, institutional investors have no choice but to buy a predetermined minimum and maximum portion of stocks in a specific region, even when having a strong view about expected out- or underperformance of that same region.

Traditional equity indices bundle companies based on their country of domicile and primary listing, regardless of where the selected companies generate their revenues. Solutions such as STOXX TRU Indices take into account each company's revenue exposure to single countries in the selection process and focus on companies that generate all or a significant portion of their revenues in targeted countries or regions. In using such solutions that take into account revenue exposure by geography, investors can implement their views on relative value of different regions while meeting given geographic allocation targets.

Investors, for instance, who felt strongly about expected outperformance of developed over emerging markets, could implement their view via STOXX TRU Developed Markets 100%, which invests only in developed market securities which generate 100% of their revenues from clients based within developed market countries. By investing in this benchmark, these investors could have successfully reduced the drawdown of their developed market benchmark by over 2% during the China crisis in August and September of 2015. While the STOXX Global 1800, whose members rely partly on revenue streams from emerging markets clients, slumped 10% during this period, the STOXX TRU Developed Markets 100%, made up of companies that get all of their revenue in the developed world, fell only 8%. (see figure 2).

INFRASTRUCTURE

Another option to reduce downside volatility is to invest in asset classes that are less dependent on economic turns and thus less vulnerable to market swings. Here, infrastructure firms stand out. The predictable and inflation-linked cash flows these businesses produce protect them, to some extent, from cyclical downturns. Infrastructure investments give up the growth potential of other, more pro-cyclical investments, but avoid their drawdowns.

The STOXX Global Broad Infrastructure Index is made up of about 150 companies worldwide that generate more than half of their revenue from sectors including communications, energy and utilities. It fell 30% in 2008, as investors dumped risky assets, steeply beating the 39% loss for the STOXX Global 1800 over the same period.

It is possible to lower the risk in an equities portfolio without incurring additional costs or capping gains. In fact, many studies have shown that one can achieve overall performance and even return benefits from strategies that provide low volatility as well as low correlation to other equity strategies and asset classes and thereby achieving the needed diversification. This is especially relevant for long-term investors such as pension funds that must control risk to project the basis of future returns. STOXX provides strategy solutions with smart-beta characteristics that, when appropriately used, can help reduce the impact of downside volatility that is ever present with an equity allocation. ❇